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ABSTRACT

"Six Steps of Argument Analysis" is a model for a critical thinking class which illustrates where and how the teacher can break off from the well-ordered sequence of critical thinking skills in order to provide occasions for each student to realize where he or she is making a judgment. Through use of this model the teacher can encourage the student to make judgments, to use these initial judgment makings as materials for discussion about an individual's art of judgment, and to differentiate a well-made judgment from a poorly made one. The six steps include: clarifying the meaning; bracketing and numbering relevant sentences or phrases; diagramming the argument; evaluating the evidence in the argument; evaluating the inferences; and assessing the overall soundness of the argument. These six skills necessarily require textbook reading, some homework and class discussion, some of which is necessarily didactic, in a sequence whose steps are to be justified, whereby the student may practice skills and acquire proficiency. (KEH)

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Critical Thinking and the Art of Judgment

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Critical Thinking and the Art of Judgment

In a 1580 essay "On the education of Children" hauntingly similar to today's outcry for critical thinking in the schools, Michel de Montaigne castigated the kind of thinking skill being taught in the schools: the forms of the syllogism are drilled into children's heads; "our tutors never stop bawling into our ears, as though they were pouring water into a funnel; and our task is only to repeat what has been told us"[1] (110). But "it is a sign of rawness and indigestion to disgorge food just as we swallowed it. The stomach has not done its work if it has not changed the condition and form of what has been given it to cook"(111). When this is the kind of schooling we get, "our mind moves only on faith, being bound and constrained to the whim of others' fancies, a slave and a captive under the authority of their teaching. We have been so well accustomed to leading strings that we have no free motion left; our vigor and liberty are extinct" (111).

By contrast, Montaigne appeals for a complete reversal of education - not to fill heads, but to provide the materials with which the student might form his own powers of judgment: "Let the tutor make his charge pass everything through a sieve and lodging nothing in his head on mere authority and trust: let not Aristotle's principles be principles to him any more than those of the Stoics or Epicureans. Let this variety of ideas be set before him; he will choose if he can; if not, he will remain in

doubt. Only the fools are certain and assured...He who follows another follows nothing. He finds nothing; indeed he seeks nothing...Let [the student] know that he knows, at least. He must imbibe their way of thinking, not learn their precepts. And let him boldly forget, if he wants, where he got them, but let him know how to make them his own. Truth and reason are common to everyone, and no more belong to the man who first spoke them than to the man who says them later... The bees plunder the flowers here and there, but afterward they make of them honey, which is all theirs; it is no longer thyme or marjoram. Even so with the pieces borrowed from others; he will transform and blend them to make a work that is all his own, to wit, his judgment. His education, work , and study aim only at forming this." (111)

Recently I began drafting a textbook for critical thinking skills, and in preparation surveyed about 40 texts published since World War II. Although they show improving ability to distinguish formal from informal logic, and improving presentation of the skills of argument analysis -- and in a few cases even some concern for synthesis -- there is little realization of the opportunities already located within these curricula, for nurturing the students' powers of judgment in addition to acquiring the more-didactically-teachable skills. I would like to use one model for a CT class - my own - as a backdrop, for purposes of illustration, in order to show where and how the teacher can break off from the well-ordered sequence of critical thinking skills in order to provide occasions - themselves cumulative, I think - for each student to realize where he is making a judg-

ment, to encourage him to do so, and to use these initial makings as materials for discussion about one's own art of judgment - about what differentiates a well-made judgment from a poorly-made one.

The model I have in mind for a backdrop is the following "Six Steps of Argument Analysis", (which I have modified from Michael Scriven's five steps): 1. Clarification of meaning; 2. bracket and number relevant sentences or phrases; 3. diagram the argument; 4. evaluate the evidence in the argument; 5. evaluate the inferences; and 6. assess the overall soundness of the argument. These six skills necessarily require textbook reading, some homework and class discussion, some of which is necessarily didactic - at least in the sense that one is providing a technical vocabulary, in a sequence whose steps are to be justified, whereby the student may practice skills and acquire proficiency.

But here I would like to try to do two things at once - or really, two things by turns: though there is something structured and sequential about these six steps, and something didactic, there is also, from the very beginning, a wide variety of occasions for, or presentation of kinds of, judgments needing to be made. Taking my cue from Montaigne, "I should like the tutor...right from the start, according to the capacity of the mind he has in hand, to begin putting it through its paces, making it taste things, choose them, and discern them by itself; sometimes clearing the way for him, sometimes letting him clear his own way...." (110).

Step 1. Clarification of meaning: Usually encompassed in this step would be looking up unfamiliar words, obtaining definitions of special usages or idioms, rewriting rhetorical questions, paraphrasing wild assertions in order to get some plausible meaning out of them, and so forth. But there is a sense in which these tasks presuppose something many of us ten or 15 years ago, did not realize was being presupposed by us. We failed to see it, and proceeded at our own and our students' risk: underlying all these apparently neat and clean clarification tasks - or even those that are murky and grubby - there was the unspoken assumption that the students *had formed some kind of adequate judgment as to what the passage was all about in the first place*. When I realized how inadequate was this assumption, how often many of them saw no forest at all, only isolated trees in view, I began to modify step 1 by adding an exercise in judgment - having each student write a 3-sentence summary of the argument in her own words. By keeping it to three sentences, they were forced into brevity, and thus the use of their power of judgment. By allowing three, I meant to imply that main reasons in support could take up one or two sentences, and the main conclusion one or two.

Once these summaries are written, they can be passed around and discussed. Invariably some will have left out a major idea without which the piece would not make any sense, and this can be discussed Socratically until the class produces reasons from including only certain ideas.

Step 2. Bracketing and numbering: invariably the easiest examples acquire almost universal agreement as to how to do them, and as more extended arguments are considered, the confusion factor or quotient rises: first a few, and then more and more students will pick ideas that are tangential or irrelevant, or compound two different items into one, or take the conclusion to be the main reason and *vice versa*. Here the danger of the bad sense of didactic teaching arises - whether to tell them how to do it, or not. One way to seize this embarrassing moment and turn it into a positive occasion for the formation of judgment is to ask students why they chose - a judgment - this or that portion to bracket and number, while omitting others. When the inevitable differences of judgment come to light, they can be written on the board for comparison, sometimes the more slowly the better. That is, often students were not aware they were forming a judgment, but simply reacted, perhaps from some psychic cue or some buzzword, forming a snap judgment. As different readings are set side by side and compared, the implications and adequacies of these different choices can be discussed. Though it is true that some cases will occur when a thorough consensus does not emerge, at least it becomes evident that what comes to be chosen as the best one to use for future reference was not chosen arbitrarily in the authoritarian or capricious sense. It may have been arbitrary in the sense of a free choice, but it was a deliberated choice, with reasons given.

Step 3. Diagramming When one comes to diagramming an argument, again there is at least one opportunity to back off, as it were, - to view a proposed diagram from a distance, and use the occasion as one for testing the students individual powers of judgment: what would be at least one alternative diagram? Invariably here, too, there are "takers", and again too everyone wins, because no proposal is found to be less worthwhile than another one until its consequences, its carrying-power, is seen to omit something vital which another diagram-candidate has included.

Seeing that difference provides a shared basis for consensus on a diagram, a shared reason why the one judgment did a better job, was more well-made, than another. And, in the best cases, two significantly different diagrams are produced, each equally plausible in view of the given argument, but each deriving its own plausibility from emphasizing different aspects than its rival. Needless to say, this experience can be a supreme example of illustrating the art of judgment - for it shows at one and the same time that there can be two right answers, and in what ways each has the rightness it has, and what commitments and consequences are entailed by each of them, so that then if one judges to pick this one, or that one, one knows what is the price of that pick.

Step 4. Evaluation of Evidence. I think the evaluation of evidence provides an almost infinite variety of opportunities for the formation of judgment. Questions about other relevant information, what evidence might counter the given evidence, questions

of necessity and sufficiency of evidence for the claim in question, and probability estimates about the extent of truth of an assertion, all lend themselves to asking each student how he or she made the call, why, and what consequences ensue, what weak spots open up or are closed off by doing so. Since, again, one can count on a wide variety of responses in any class, - some of which will baffle the instructor, and some thrill because they are so strikingly sensible even though he never dreamed of them - the delicacy, and yet too the hardihood of the art of judgment is covertly emphasized. Some assessments of evidence will be solid, safe, even clear favorites, and others will be hopeless, contravening even the average amount of second thoughts. What to do about these 'grey areas' of evidence evaluation, these sticky cases where it seems chaos will break out if thinking degenerates into 'anything goes' ? I think that when one is focusing on the art of judgment, the grey areas are not to be feared as the regrettable detritus or humiliating dirty family laundry of those who love and teach critical thinking. Rather, as I have undertaken to show, they present golden opportunities for further exploration, for Socratic discussion, and, inevitably, when a student does settle on a particular judgment, opportunities for him to experience the awareness that this **is** a choice, an action of the mind, and to become focused on just how he made that choice, in detail -- what items were downplayed and why, which were played up and why.

Step 5. Evaluation of Inferences. Hurriedly, let me say something about where the art of judgment can be encouraged in the evaluation of inferences: most of us, I think, use a five-place scale here, from nil to deductively valid, with intermediate stops at weak, moderate and strong. At first, there is no self-evident mark of an inference that fits into the 3 intermediate areas. Quantifiers or other modal or grammatical properties often tip off the cases that are at the two extremes - dv or nil, but we are hard-pressed to figure out how to help students evaluate inferences which are neither clearly dv nor nil. One device I use, which puts the student's judgment to the test and saves the instructor from indefensible dogmatism, is to ask her to develop at least one counter-argument to the argument whose inference is being judged. This can be a counter in one of three ways - because <1> it uses the same reasons but reaches a different conclusion, <2> uses different reasons but reaches the same conclusion, *or* <3> uses both different reasons and reaches a different conclusion. Once this idea of a counter-argument is explained, the assignment yields a wealth of class discussions about the inference in question - for each student will have undertaken to see whether it can be shaken, and if so, how easily. If virtually any counter is better, more plausible, than the original, then we can call its inference 'weak'; if even to produce a counter requires producing absurdities and wild assumptions beyond the pale of belief, then the original was quite solid, 'strong'. Here too, it may be noted, it is not only possible but even likely that a large variety of productions will

come forth, so that the students win in two ways: first, they recognize the differences between more- versus less-well made judgments of the inference's strength, but also, second, they realize that a number of sensible alternative constructions can be placed on the argument in order to render that judgment - so that they make the move from simple right/wrong judgments to the much more sophisticated and valuable discovery that comparing qualities, coverages, risks and thoroughness of judgments neither nil nor deductively valid leads one into a more dense and rich territory of what merits and demerits accompany each construction of an argument.

In *Step 6. Soundness.*, we conclude by looking at the relative proportions of truth to falsity, and of strength over weakness of inference, *combined*. Since many everyday arguments about practical problems fall somewhere in the area between totally unsound and absolutely sound, here again the students' own tasting and testing of possible soundness judgments serves to stimulate the making of his judgment in ways comprehensive of all those judgments discussed hitherto.

In order to promote this kind of work, I ask them to contrast two kinds of soundness - how sound is the original on its own terms, and how sound is it when considered globally, in the context of discussion on that topic, in general, as it is available today? The point of this is to enable them to become more critical about soundness than they could be by sticking to the original.

My reason for saying 'more critical' is that a person can build an argument with virtually watertight soundness, and thus apparently win the highest of scores in terms of reasoning skills, by omitting from it all the sticky evidence, the unknowns, the doubts, grey areas, dicey judgment calls, and ambiguities with which people are troubled. But is that sort of argument therefore the kind we ought to take most seriously in a discussion? By asking students to present their own assessments of soundness in terms of comparing the internal soundness to the global, the class is provided with the materials for discussion. That discussion does exhibit some unfairness - in that there will be those in the class who had a larger background knowledge about a given issue than had some others in the class. But that unfairness, that discovery of one's own ignorance is not altogether useless. In some cases, a student's soundness judgment will seem to make more sense out of the total issue than any other, - in which case the reasons why it is good, well-made, can be pin-pointed and detailed. In other cases, several alternative soundness judgments will emerge, not really reconcilable. The benefit here is that what was irreconcilable can be pin-pointed to some extent, as to whether it is missing information, or reveals the poor state of the question, human weakness, or ideological commitments seen to be overriding by the people on the several sides to the question. But in that case, each student has been able to see how her judgment was influenced by those factors, how others were influenced differently, and what future consequences or inquiries may be called for or likely.

Conclusion. Seen in this way, what might have been a whole semester of teaching skills didactically -- even when, ironically, those skills are themselves critical not didactic thinking skills -- can be augmented and improved by looking upon each phase of the course not only for its reasoning skills in the analytic senses, but for reasoning skills in the synthetic or judgment-forming sense. The point of all this is profoundly liberal. The art of judgment, as Montaigne once said, is the first of the liberal arts, for in the pupil in whom it is nurtured, "he will not so much say his lesson as do it. He will repeat it in his actions. We shall see if he shows prudence in his enterprises, if he shows goodness and justice in his conduct, if he shows judgment and grace in his speaking, fortitude in his illness, modesty in his games, temperance in his pleasures, unconcern in his tastes, whether flesh or fish, wine or water, order in his economy. *Who makes his learning not a display of knowledge, but the law of his life; who obeys himself and submits to is own injunctions* [Cicero]. The true mirror of our discourse is the course of our lives". (124)..

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1. *The Complete ESSAYS of Montaigne*, trans. Donald Frame (Stanford University Press, 1965), Essay II/26, pg. 110. Subsequent references to this translation will be given in the text parenthetically as, for example, "(110)".